Hemoglobin D

D

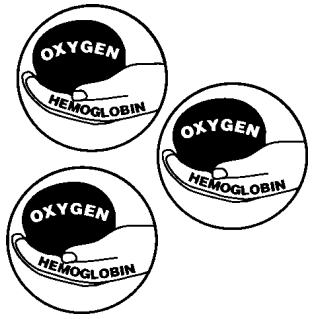
Cover

To understand hemoglobin D, it is helpful to understand a little more about our blood. Hemoglobin D affects a part of the blood called hemoglobin.

Hemoglobin

One role of the blood is to take the oxygen from the air in the lungs and bring it to all parts of the body. The part of the blood that does this job is the red blood cell.

Hemoglobin is the part of the red blood cell that carries the oxygen.

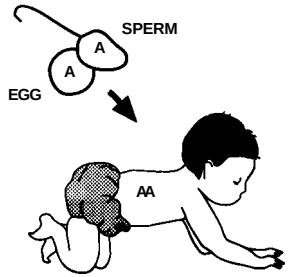


HEMOGLOBIN IN RED BLOOD CELLS CARRIES THE OXYGEN.

The way hemoglobin is made in the body depends on the **genes** a child inherits from both parents. A gene carries instructions, like what color the child's skin or eyes will be. Different genes carry different instructions.

We can inherit genes which cause unusual types of hemoglobin to be made, or genes which interfere with the amount of hemoglobin made.

The usual adult hemoglobin is called hemoglobin A. The less common types of hemoglobin are named by letters, such as hemoglobin D or hemoglobin S, sickle hemoglobin, or sometimes by names such as hemoglobin Bart's.



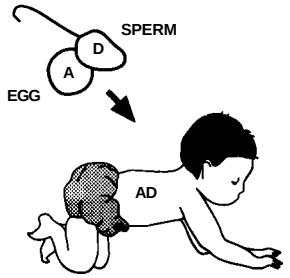
GENES IN THE SPERM OF THE FATHER AND THE EGG OF THE MOTHER DETERMINE THE TYPE OF HEMOGLOBIN.

What is Hemoglobin D?

Hb D is a type of hemoglobin that is found in many parts of the world. It is often found in people with ancestors from India and Pakistan and also occurs in people from England, Holland, Australia, China and the Middle East.

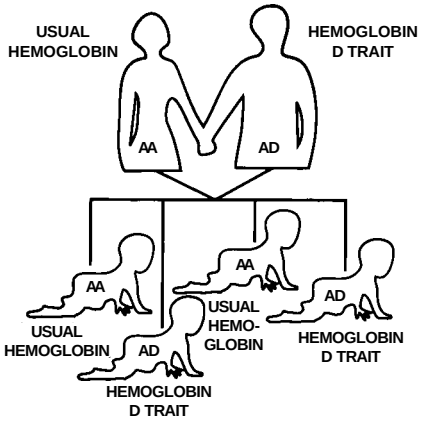
Hemoglobin D Trait

Each child inherits one gene from the mother and one from the father that instructs the body how to make hemoglobin. If an individual inherits one gene for the usual hemoglobin A and one gene for hemoglobin D, they are said to have hemoglobin D trait.



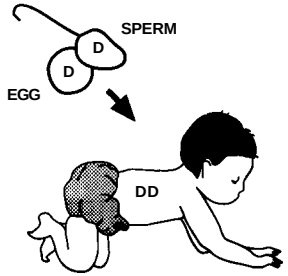
HEMOGLOBIN D TRAIT IS **NOT** A DISEASE AND DOES NOT AFFECT A PERSON'S MENTAL OR PHYSICAL HEALTH.

People with hemoglobin D trait may pass the hemoglobin D gene to their children. If only one parent has hemoglobin D trait, there is a 50/50 chance that the children might inherit the trait. The chances are the same with each pregnancy.



Homozygous D (Hemoglobin DD)

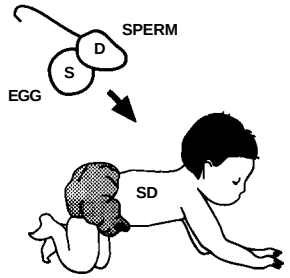
If a person inherits the hemoglobin D gene from **both** parents, only hemoglobin D is made in the body.



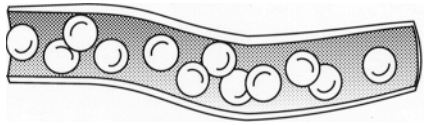
When only hemoglobin D is present, the red blood cells are broken down in the body a little faster than usual. This can cause mild anemia. Most people with homozygous hemoglobin D usually have no health problems.

Sickle-Hemoglobin D Disease

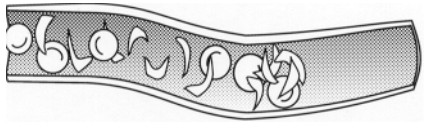
Sickle-hemoglobin D disease occurs when a person inherits a gene for sickle hemoglobin (hemoglobin S) from one parent and a gene for hemoglobin D from the other parent.



This causes the red blood cells to sometimes change from a very flexible round shape into a rigid crescent or "sickle" shape. Sickle-shaped red blood cells can prevent the usual flow of blood and oxygen to body organs.



ROUND RED BLOOD CELLS FLOW THROUGH SMALL BLOOD VESSELS.

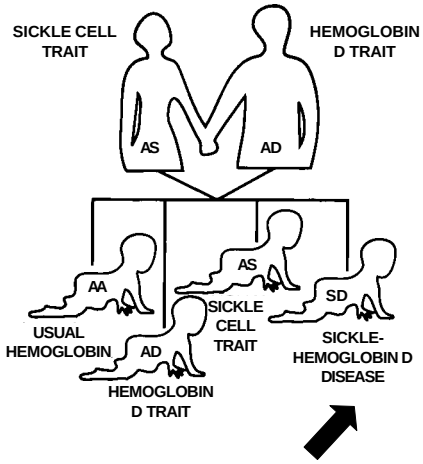


SICKLE-SHAPED RED BLOOD CELLS CAN BLOCK THE FLOW OF BLOOD IN SMALL BLOOD VESSELS.

Symptoms of sickle-hemoglobin D disease include a higher risk for certain infections to occur and can also include painful episodes and an enlarged spleen. Sickle-hemoglobin D disease does not affect intelligence. There is no cure for sickle hemoglobin D disease, but there are treatments for the problems caused by the disease. It is very important that people with sickle-hemoglobin D disease receive regular medical care.

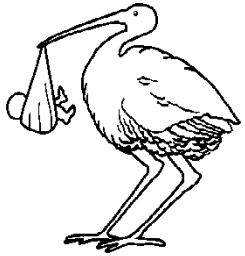
Prenatal Diagnosis of Sickle Hemoglobin D Disease

When one parent has sickle cell trait and the other parent has hemoglobin D trait, there is a one-in-four (25%) chance that their child will have sickle-hemoglobin D disease. They might also have a child with sickle cell trait (1-in-4, or 25% chance), hemoglobin D trait (1-in-4, or 25% chance), or a child with the usual hemoglobin (1-in-4, or 25% chance). The chances are the same with each pregnancy.



A woman can have testing as early as the second month of pregnancy to see if the baby has sickle-hemoglobin D disease. When the disease is found early in pregnancy, parents can choose whether or not to continue the pregnancy.

It can be helpful for people to know about their hemoglobin type so they can make informed decisions regarding family planning. Testing and counseling can be arranged, and questions answered about hemoglobin D or any other kind of inherited hemoglobin condition by contacting:



Newborn Screening Program
1610 NE 150th Street
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(206) 361-2902

Washington State Department of Health

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